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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,843	05/31/2005	Juergen Weese	DE020294US1	6524
24737 7590 05/27/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER CATTUNGAL, SANJAY				
ART UNIT		PAPER NUMBER		
3768				
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05/27/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/536,843

Applicant(s)

WEESE, JUERGEN

Examiner

SANJAY CATTUNGAL

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Appeal Brief, filed 02/17/09, with respect to the rejection(s) of claim(s) 1-20 have been fully considered, some of the arguments are persuasive and appropriate rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al. in view of NPL titled "Towards Real-Time Multi Modality 3-D Medical Image Registration" to Weese et al.
2. Regarding Strommer reference Applicant argues that Strommer does not teach a data processing unit to sort the images into a sequence. Examiner would like to point out that Strommer references Paragraph 110 and 0112 teaches a data processor for sorting images into a sequence.
3. Applicant argues Strommer does not teach sorting a further local image, which is made by sensor probe into the sequence; and position medical device based on the sorted image.
4. Examiner would like to point that Strommer teaches that the further local image is sorted based on similarites (location and orientation are considered similarities in the images) of the one or two adjacent images in the sequence (Paragraph 0112 and 0144). Here the 3d image is considered sequence of 2d image and updating the 3d image required further sorting a local image into the sequence of images (3d image), based on location and orientation (similarities). Furthermore Strommer teaches

positioning a medical device (Stent) coupled to the catheter based on the sequence of images (Paragraph 0082).

5. Applicant argues that Strommer does not teach geometrical correction of local images based on pre-existing images.
6. Examiner would like to point out that Strommer teaches performing geometrical corrections to local images based on pre-existing images (paragraph 0174).
7. Applicant argues that references do not teach determining similarity based on gray-value based registration. Examiner would like to point out that the new NPL reference Weese, teaches gray value based registration of images.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

9. A person shall be entitled to a patent unless –

10. (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-10, 13-16, 18, and 20, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al.

12. Regarding Claims 1, and 7, Strommer teaches an apparatus for assisting navigation in a vessel comprising: a sensor probe for acquiring local images that characterize the vessel at the point where the particular local image is made, which

sensor probe can be moved along the vessel (0076); a memory for storing a sequence of local images that is obtained in the course of the movement of the sensor probe along the vessel; a data-processing unit that is arranged to sort a further local image of the vessel into the sequence that is stored in the memory based on similarities between the further and one or more local images.(Figs. 7b and 9; Paragraph 0076, 0077, 0082 and 0141)

13. Regarding Claims 2, 3, 14, 18, and 20, Strommer teaches that the probe is an intravascular ultrasound system, and moved along the vessel in a defined speed (paragraph 0076).

14. Regarding Claim 4, Strommer teaches that the positional data of the probe is displayed (paragraph 0082 and 0107).

15. Regarding Claim 5 and 13, 15, Strommer teaches positioning a medical device (Stent) coupled to the catheter based on the sequence of images (Paragraph 0082).

16. Regarding Claim 6, Strommer teaches that the lumen is a vessel (Paragraph 0059).

17. Regarding Claims 8 and 9, Strommer teaches that the further local image is sorted based on similarities (location and orientation are considered similarities in the images) of the one or two adjacent images in the sequence (Paragraph 0112 and 0144). Here the 3d image is considered sequence of 2d image and updating the 3d image required further sorting a local image into the sequence of images (3d image), based on location and orientation (similarities).

18. Regarding Claim 10, Strommer teaches that the images are related to position data (Figs. 2 and 3).

19. Regarding claim 16, Strommer teaches performing geometrical corrections to local images based on pre-existing images (paragraph 0174).

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 11, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al. in view of U. S. Publication No. 2003/0199767, U. S. Application No. 10/232,428 to Cespedes et al.

22. Regarding Claims 11, 12, and 19, Strommer teaches all of the above claimed limitations but does not expressly teach that the sensor probe can acquire images using Optical coherence tomography.

23. Cespedes teach that the sensor probe can acquire images using Optical coherence tomography (Paragraph 0041).

24. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Strommer with a sensor probe that can acquire images using Optical coherence tomography as taught by Cespedes, since IVUS and OCT are

common catheter based imaging modalities and using OCT would also be beneficial in determining plaques, hence would be beneficial in correct stent positioning.

25. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Publication No. 2007/0107688 US Application no. 10/938,395 to Strommer et al. in view of NPL titled "Towards Real-Time Multi Modality 3-D Medical Image Registration" to Weese et al.

26. Regarding Claim 17, Strommer teaches all of the above claimed limitations but does not expressly teach similarity between the further local image and the one or more of the local images of the sequence based on gray-value registration.

27. Weese teaches the use of gray-value based image registration (Page 1).

28. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Strommer, with a gray value based registration setup as taught by Weese, since such a setup would result in precise registration of images, as the adjacent images will be closely related in gray values.

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on Monday-Friday 9-5.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPC

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768